

**BHUBANANANDA ODISHA SCHOOL OF
ENGINEERING, CUTTACK
DEPARTMENT OF CIVIL ENGINEERING**



LESSON PLAN

SUBJECT: HIGHWAY ENGG. (TH 4)
FACULTY: SONALIRANI PADHIARI

ACCADEMIC SESSION: 2023-24
SEMESTER: 4TH
SEC: B

Sd/-
H O D (Civil Engg.)

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Discipline: Civil Engineering	Semester: 4th		Name of the teaching faculty: SONALIRANI PADHIARI
Subject: Highway Engg.	No. of Days / week class allotted: 05 period per week (Weds,Thurs,Fri-1period each & Sat-2 Period)		Semester : From date: 16-01-2024 to date : 26-04-2024 No of weeks: 15 weeks
Week	Class Day	No of period available	Theory/Practical topic
1 st	17/01/2024	1	1 Introduction 1.1 Importance of Highway transportation: importance organizations like Indian roads congress,
	18/01/2024	1	1.1 Ministry of Surface Transport, Central Road Research Institute. 1.2 Functions of Indian Roads Congress
	19/01/2024	1	1.3 IRC classification of roads 1.4 Organization of state highway department
	20/01/2024	2	2 Road Geometric 2.1 Glossary of terms used in geometric and their importance.
2 nd	24/01/2024	1	2.1 Right of way
	25/01/2024	1	2.1 Formation width, road margin, road shoulder
	27/01/2024	2	2.1 carriage way, side slopes
3 rd	31/01/2024	1	2.1 Kerbs, formation level, camber and gradient.
	01/02/2024	1	2.2 Design and average running speed
	02/02/2024	1	2.2 stopping and passing sight distance
	03/02/2024	2	2.3 Necessity of curves 2.3 Horizontal and vertical curves including transition curves

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4 th	07/02/2024	1	2.3 Super elevation
	08/02/2024	1	2.3 Methods of providing super – elevation
	09/02/2024	1	3Road Materials 3.1 Difference types of road materials in use: soil, aggregates, and binders
	10/02/2024	2	3.2 Function of soil as highway Sub grade 3.3 California Bearing Ratio: Methods of finding CBR valued in the laboratory and at site and their significance
5 th	15/02/2024	1	3.4 Impact test, crushing strength test
	16/02/2024	1	3.4 Water absorption test & soundness test
	17/02/2024	2	4 Road Pavements 4.1 Road Pavement: Flexible and rigid pavement,their merits and demerits
6 th	21/02/2024	1	Typical cross sections,functions of various components
	22/02/2024	1	4.2 Sub-grade preparation: Setting out alignment of road, setting out bench marks
	23/02/2024	1	4.2Control pegs for embankment and cutting, borrow pits,
	24/02/2024	2	making profile of embankment, construction of embankment, compaction, stabilization, preparation of sub grade
7 th	28/02/2024	1	methods of checking camber, gradient and alignment as per recommendations of IRC, equipment used for sub grade preparation

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	<u>29/02/2024</u>	1	4.3 Sub base Course: Necessity of sub base, stabilized sub base, purpose of stabilization (no designs) Types of stabilization • Mechanical stabilization • Lime stabilization
	<u>01/03/2024</u>	1	Monthly Class Test I
	<u>02/03/2024</u>	2	• Cement stabilization • Fly ash stabilization 4.4 Base Course: Preparation of base course, Brick soling, stone soling and metalling 4.4 Water Bound Macadam and wet-mix Macadam, Bituminous constructions: Different types
8 th	<u>06/03/2024</u>	1	4.5 Surfacing: • Surface dressing (i) Premix carpet and (ii) Semi dense carpet
	<u>07/03/2024</u>	1	Bituminous concrete • Grouting
	<u>09/03/2024</u>	2	4.6 Rigid Pavements: Concept of concrete roads as per IRC specifications
9 th	<u>13/03/2024</u>	1	5 Hill Roads: 5.1 Introduction: Typical cross-sections showing all details of a typical hill road in cutting
	<u>14/03/2024</u>	1	5.1 Partly in cutting and partly in filling
	<u>15/03/2024</u>	1	5.2 Breast Walls, Retaining walls, different types of bends
	<u>16/03/2024</u>	2	6 Road Drainage: 6.1 Necessity of road drainage work, cross drainage works

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10 th	20/03/2024	1	6.2 Surface and sub-surface drains and storm water drains. Location, spacing and typical details of side drains, side ditches for surface drainage
	21/03/2024	1	6.2 Intercepting drains, pipe drains in hill roads, details of drains in cutting embankment, typical cross sections
	22/03/2024	1	7 Road Maintenance : 7.1 Common types of road failures – their causes and remedies
	23/03/2024	2	7.2 Maintenance of bituminous road such as patch work and resurfacing
11 th	27/03/2024	1	7.3 Maintenance of concrete roads – filling cracks, repairing joints, maintenance of shoulders (berm)
	28/03/2024	1	7.3 Maintenance of concrete roads – filling cracks, repairing joints, maintenance of shoulders (berm)
	30/03/2024	2	7.3 maintenance of traffic control devices
12 th	03/04/2024	1	Internal Assessment
	04/04/2024	1	7.4 Basic concept of traffic study
	05/04/2024	1	Traffic safety and traffic control signal
	06/04/2024	2	Monthly Class Test
13 th	10/04/2024	1	Construction equipments: Preliminary ideas of the following plant and equipment: 8.1 Hot mixing plant
	12/04/2024	1	8.2 Tipper, tractors (wheel and crawler) scraper, bulldozer dumpers, shovels, graders, roller dragline
	13/04/2024	2	8.2 Tipper, tractors (wheel and crawler) scraper, bulldozer dumpers, shovels, graders, roller dragline

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14 th	18/04/2024	1	8.3 Asphalt mixer and tar boilers
	19/04/2024	1	8.4 Road pavers
	20/04/2024	2	8.5 Modern construction equipments for road
15 th	24/04/2024	1	REVISION
	25/04/2024	1	Previous Year Questions and Answers Discussion
	26/04/2024	1	Previous Year Questions and Answers Discussion